

20-114-3 29/60

Synthesis and Chemical Transformations of Trichloromethyl and ω, ω -Dichloro-allyl Compounds of Mercury

reactions of bromotrichloromethane, bromo- and iododichloromethane with 1,1-dichloro-3-iodopropene-1 with mercury in the case of ultra-violet irradiation and heating up to $70 - 80^{\circ}\text{C}$ and vigorous stirring; furthermore, the reaction of iodotrichloromethane with mercury in the case of normal agitation without any irradiation was studied. From these processes the following compounds resulted: CCl_3HgBr , CHCl_2HgBr , CHCl_2HgI , $\text{CCl}_2=\text{CHCH}_2\text{HgI}$ and CCl_3HgI with yields 41; 1,2; 2,5; 67 and 12 % according to theory. By the interaction of bromotrichloromethane and a calculated quantity of sodium amalgam of 0,5 % with hexachloro-ethane, one received with a small yield also trichloromethyl-mercury and no symmetric compound $(\text{CCl}_3)_2\text{Hg}$. Such an anomaly is known only in the case of iodocyclohexane-mercury. The authors found a simpler and more convenient method for the transition of alkyl-mercury-iodides to chlorides. It consists of an exchange reaction with mercuric chloride in the case of heating in ether or alcohol. In a number of reactions the β -methyl compounds of mercury remind one of the so-called "quasi-complex" compounds. Trichloromethyl-

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Synthesis and Chemical Transformations of Trichloromethyl and ω, ω -Dichloro-allyl Compounds of Mercury

-mercury-halogenides form complexes with pyridine as well as "quasi-complex" compounds. In the case of CCl_3HgJ the complex is unstable and disintegrates quickly if stored. Hydrogen sulfide causes HgS already in a cold state to separate quantitatively from the alcohol solution. At interaction of bromotrichloromethyl-mercury with $\text{C}_6\text{H}_5\text{MgBr}$, bromophenyl-mercury is produced beside phenyl-trichloromethyl-mercury. The interaction of bromotrichloromethyl-mercury with diphenyl-stannian under normal conditions progresses in two different directions according to the quantity of alkali used. With a stoichiometric proportion phenyltrichloromethyl-mercury (49 %) is produced. With a larger quantity of alkali the reaction leads to diphenyl-mercury (29 %). In both cases plenty of infusible and insoluble precipitates containing mercury were produced. With HCl containing methanol phenyltrichloromethyl-mercury forms $\text{C}_6\text{H}_5\text{HgCl}$ with a quantitative yield. The first-mentioned compound, after half an hour of heating in a sealed glass tube, yields the latter with 80 %. The influence of normal "symmetrizers" (KJ , $\text{Na}_2\text{S}_2\text{O}_3$, Cu) upon trichloromethyl-mercury-halogenid-

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20-114-3 19/60

Synthesis and Chemical Transformations of Trichloromethyl and ω, ω -Dichloro-allyl Compounds of Mercury

es does not lead to a formation of bistrichloro-methyl-mercury, which does not happen under the influence of dry ammonia upon a chloroform solution of CCl_3HgCl either. In the latter case 95,5 % of an infusible precipitate is produced. There are 1 table and 13 references, 10 of which are Soviet..

ASSOCIATION: Institute for Elemental-Organic Compounds AS USSR
(Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

SUBMITTED: December 28, 1956

Card 4/4

AUTHORS: Nesmeyanov, A. N., Member of the Academy,
Kochetkova, N. S.

20-114-4-33/63

TITLE: The Synthesis of Alkylferrocenes by Friedel-Krafts Reaction
(Sintez alkilferrotsenov reaktsiyey Fridelya-Kraftsa)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 4, pp. 800-802
(USSR)

ABSTRACT: The authors were the first to describe the alkylation reaction of ferrocene by haloidalkyls in the presence of anhydrous chloroaluminum. The surplus of haloidalkyl was used as solvent. The authors succeeded in the present work to carry out the same reaction without having to use the surplus of haloidalkyl. Thereby the yield of the mono- and dialkylderivatives of the ferrocene was increased. As a solvent they used n-heptane or absolute petroleum ether (boiling point 60-80°C). By ferrocene alkylation through haloidalkyls (chloromethyl, chloroisopropyl) and through unsaturated hydrocarbons (ethylene) the authors have obtained hitherto unknown alkylferrocenes: methylferrocenes whose two alkyl groups are in a nucleus of the cyclopentadiene. The isomeric alkylferrocenes were separated chromatographically over

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The Synthesis of Alkylferrocenes by Friedel-Krafts Reaction

20-114-4-33/63

anhydrous aluminumoxide. Furthermore, a comparison was made of the I.-K-spectra of the isomeric diethylferrocenes and of the diethylferrocene obtained by reduction of the diacetylferrocene. The introduction of a first alkyl group in the cyclopentadiene nucleus facilitates the entering of the second alkyl into the same cyclopentadiene ring, as it takes place in the aromatic series. Thereby a mixture of dialkylferrocenes is obtained with substituents in a nucleus. Experimental part as usual. There are 4 references, 4 of which are Soviet.

SUBMITTED: March 12, 1957

Card 2/2

NES MEYANOV, A.N.

AUTHOR

NESMEYANOV, A.N., Academician

20-2-33/62

TITLE
PERIODICAL

and MYBINSKAYA, M.I.
 β -Cyanovinylketones. (Beta- Tsianvinilketony,) Doklady Akademii Nauk SSSR 1957, Vol 115, Nr 2, pp 315-318 (U.S.S.R.)

ABSTRACT

In earlier papers by the authors together with Kochetkov the manifold use of β -chlorovinylketones in the production of heterocyclic systems was proved. The application of corresponding cyanides evidently would still increase these possibilities. Although the chlorine atom in β -chlorovinyl ketones, in spite of its vinyl position, is subject to nucleophilic substitutions, and although e.g. the corresponding iodides and rhodanides are easily produced by an exchange reaction, an attempt to bring about an exchange with cyanogen salts was unsuccessful. In non-polar media the reaction does not take place, but it occurs in polar resinous formations. The authors did not succeed in producing β -cyanovinylketones over quaternary β -acyl-vinyl-trialkyl-ammonium salts. The latter readily develop under the influence of β -chlorovinylketones upon tertiary amines. β -acylvinyltrialkylammonium salts under the influence of potassium cyanide in an aqueous solution, exchange the trialkylammonium group for cyanogen. Thus β -benzoylvinyl-

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20-2-33/62

 β -Cyanovinylketones.

triethyl-ammonium readily reacts in a water medium with potassium cyanide. Phenyl- β -cyanovinylketone (yield: 77 % of theory) and triethylamine develop. Other aryl- β -cyanovinylketones with good yields were produced in an analogous manner. Alkyl- β -cyanovinylketones could only be obtained by influence of potassium cyanide on aqueous solutions of chloro- β -acylvinyl-trimethyl-ammonium salts. Thus methyl-, ethyl- and propyl- β -cyanovinylketones were obtained, but with yields smaller than those of aryl- β -cyanovinylketones. This variety which was used in the synthesis of aryl- β -cyanovinylketones, with the only difference that cooling was applied, gives the most satisfactory results. Phenyl- β -cyanovinylketone was here obtained with an almost quantitative yield and pure enough. P-nitrophenyl- β -cyanovinylketone was produced by the same method, whereas the method presupposing the application of triethylamine did not give any positive results. The structure of the resulting cyanovinylketones is confirmed by the following reactions: β -cyanovinylketones give semicarbazones. Thanks to the presence of a double bond they easily enter the Diels-Alder reaction. On heating methyl- and phenyl- β -cyanovinylketones react with cyclopentadiene and yield corresponding adducts.

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β -Cyanovinylketones.

2-benzoyl- 3 cyanobicyclo (2,2,1)-heptene-5 resulting from this reaction was saponified to the corresponding acid. Moreover an adduct of phenyl- β -cyanovinylketone was obtained with anthracene in the presence of lead chloride. This adduct was saponified to β -benzoyl- α , β -endo-9,10-dihydro-anthracene-propionic acid, which was earlier obtained by Barnett and collaborators. This it was found that the quaternary salts of β -acylvinyl- ammonium can be used in the ketovinylation reaction. This is also confirmed by the fact that the reaction of chloro- β -propionylvinyltrimethylammonium with sodium sulfide with a good yield leads to di-(β -propionyl- vinyl)-sulfide. Experimental part with the usual data. (2 Tables, 6 Slavic references)

ASSOCIATION:

Institute for elementary organic compounds of the Academy of Sciences of the USSR. (Institut elementoorganicheskikh soedineniy Akademii nauk SSSR)

PRESENTED BY:

SUBMITTED:

AVAILABLE

CARD 3/3

-
12.3.57

Library of Congress.

Nesmeyanov, A. N.

20-4-28/60

AUTHORS

Nesmeyanov, A.N., academician,
~~Freydlina, R.Kh.~~ and Chukovskaya, E.Ts.

TITLE

Thermal Telomerization of Olefins with Silanes
Containing a Si - H Bond.
(Termicheskaya telomerizatsiya olefinov s silanami,
soderzhashchimi Si-H-svyaz')

PERIODICAL

Doklady Akademii Nauk SSSR, 1957, Vol. 115, Nr 4,
pp. 734-736 (USSR)

ABSTRACT

As it was earlier proved by the authors, ethylene enters
a telomerization reaction at 270-300°C under pressure
and when an excess of ethylene is assured. A mixture of
substances $XSiCl_2(CH_2CH_2)_nH$, develops, where $X = Cl, CH_3$.

Propylene under similar conditions also readily enters
the reaction with methyldichlorosilane. It was inter-
esting to find out whether silanes which contain no
haloids also enter this reaction, as well as silanes
whose Si is connected with the aromatic nucleus. The
author found that ethylene readily enters the thermal
telomerization reaction with phenyldichlorosilane. At
280°C and 90 at. superpressure the compounds

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$C_6H_5SiCl_2(CH_2CH_2)_nH$ were obtained, where $n = 1, 2, 3$.

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Thermal Telomerization of Olefins with Silanes containing a Si - H Bond.

The reaction of ethylene with triethylsilane was performed at 300°C and 200 at. excess pressure. It was possible to isolate tetraethylsilane and triethyl-n-butylsilane from the reaction products. Fractions were also obtained which contained higher triethylalkylsilanes. In the case of the reaction of triethoxysilane with ethylene at 300°C a pressure drop (from 100 to 35 at. excess pressure) and an ethylene absorption (22 g per 75 g of the charged triethoxysilane) were observed. It was not possible, however, to isolate the individual alkyltriethoxysilanes, since under the conditions of this reaction a disproportionation reaction apparently takes place. An experimental part with the usual data follows. There is 1 Slavic reference.

ASSOCIATION:

Institute for Elementary-Organic Compounds AN USSR
(Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

SUBMITTED:

July 5, 1957

AVAILABLE:

Library of Congress.

CARD 2/2

20-1-25/44

AUTHORS: Nesmeyanov, A. N., Academician and
Rybinskaya, V. I.

TITLE: The Synthesis of 2-Substituted Dehydroquinolysinium Salts (Sintez
2-zameshchennykh soley degidrokhinoliziniya).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 1, pp. 93-96 (USSR).

ABSTRACT: Together with N. K. Kochetkov the authors reported in several papers on the use of β -chlorovinylketones as an extremely satisfactory starting material for the synthesis of various 5- and 6-member heterocyclic systems. In the present work a lithium-derivative of α -picoline was used in the reaction with acyl-acetaldehyde-acetals which are easily obtained from β -chlorovinylketones (according to the method by the authors with Kochetkov). α -picolyl-lithium by a reaction with the acyl-acetal-aldehyde-dimethyl-acetals in ether yields only little soluble lithium alcoholates of alcohol II. These latter can be filtered away and washed with ether, whereby they are liberated from admixtures of the initial substances; then they are decomposed with water. The alcohols I - II developing from them could not be isolated as free substances. They could, however, be cyclated (by boiling with an excess of concentrated bromo-hydracid), whereby

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The Synthesis of 2-Substituted Dehydroquinolysinium Salts.

20-1-29/44

salts of 2-oxy-2methyl- and 2-oxy-2-phenyl-quinolysinium (1 H, 2H) (III) were obtained. They are well soluble in water and rapidly decolorize the potassium permanganate solution. The corresponding salt for $R = C_3H_7$ was used without purification in the next stage, as it proved not to be crystallizable. The last stage, i. e. dehydration by boiling with acetic anhydride, takes place extremely easily. The yield (in relation to the initial acetal) was 20-30%. This method made it possible to produce to hitherto unknown salts mentioned in the title in a simple manner. The properties of the 2-substituted bromides, of the perchlorate and picrate of 2-phenyldehydroquinolysinium are described. The resulting salts do not decolorize the potassium permanganate solution and thus do not contain any non-aromatic double bonds. 2-methyl-dehydroquinolysinium-bromide on hydration over platinum black absorbs 5 Mol hydrogen, which indicates the presence of 5 double bonds in the condensed nucleus. The absorption spectrum of the latter substance, taken in the ultraviolet range, is in good agreement with that by Boekelheide & Gall for the dehydroquinolysinnium-ion. It follows an experimental part with the usual data.

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There are 9 references, 3 of which are Slavic.

The Synthesis of 2-Substituted Dehydroquinolysinium Salts. 20-1-25/44

ASSOCIATION: Institute for Elementary-Organic Compounds, AN USSR (Institut
elementoorganicheskikh soedineniy Akademii nauk SSSR).

SUBMITTES: April 24, 1957.

AVAILABLE: Library of Congress.

Card 3/3

NESMEYANOV, A. N.

20-1-24/42

AUTHORS: Nesmeyanov, A. N., Academician, and
Kochetkova, N. S.

TITLE: A Note on Ferrocene Homologues with a Tertiary Alkyl
Radical (Gomologi ferrotsena s tretichnym alkil'ny
radikalom)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 1, pp. 92-94 (USSR)

ABSTRACT: Among the number of alkyl-ferrocenes, which have been known up to now, a series of monoalkyl homologues (C_1 to C_8) were produced, and furthermore di- and polyalkyl homologues. The infrared spectra indicate, that the dialkylferrocenes contain both alkyl substituents in the same cyclopentadiene ring. In the present paper isobutylene was employed apart from haloidalkyles for the purpose of alkylizing. According to the conditions, which were selected, up to 50 % of monotertiary butylferrocene (at a total rate of production of alkylized products of 30 %, table 2) were obtained. Tertiary butylferrocene, di-tertiary butylferrocene and di-tertiary amylferrocene each contain a free cyclopentadiene ring and show characteristic frequencies in the range of $1003 - 1107 \text{ cm}^{-1}$.

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A Note on Ferrocene Homologues with a Tertiary Alkyl
Radical

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A comparison of the values found for molecular refraction shows, that in the homologous series of alkylferrocenes a habitual additivity ("additivnost") of molecular refraction occurs (table 1). This is in accordance with an almost complete identity of the absorption curves in the ultraviolet range as well of the ferrocene itself as of its homologues. The difference between the molecular refraction found here and the sum of the atomic refractions of C and H in the ferrocene homologues fluctuates between 13,58 and 13,89 (13,74 on the average). It comprises the atomic refractions of iron and the increment of the ferrocene structure (η combinations and others) and, on certain conditions, may be called ferrocene-increment. This value in the case of ferrocene yields a computed molecular refraction of 48,91 (not 46,8, as according to reference 3). No statements can be made concerning the stability of this value in the case of other ferrocene derivatives. There follows an experimental part with the usual data. There are 1 figures, 2 tables, and 4 references, 3 of which are Slavic.

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A Note on Ferrocene Homologues with a Tertiary Alkyl
Radical

20-1-24/42

SUBMITTED: July 3, 1957

AVAILABLE: Library of Congress

Card 3/3

NESMEYANOV, A.N., akademik; NOGINA, O.V.

Reaction of dialkoxo-titanium-oxides with tetra-alkoxy-silanes.

Dokl. AN SSSR 117 no.2:249-251 N '57.

(MIRA 11:3)

(Titanium organic compounds) (Silane)

20-3-21/52

AUTHORS:

Nesmeyanova
Nesmeyanov, A. N. , Academician, ~~Kazitsyna~~ , L. A. , Lokshin, B. V.
and Kritskaya, I. I.

TITLE:

Position of Substituents in Ferrocene Compounds, as Determined
From Infrared Absorption Spectra (Opredeleniye polozheniya zamesti-
teley v ferrotsenovykh soyedineniyakh po infrakrasnym spektram
pogloshcheniya)

PERIODICAL:

Doklady AN SSSR, 1957, Vol. 117, Nr 3, pp. 433 - 436 (USSR)

ABSTRACT:

With respect to the possession of the apparently greatest series
of these spectra of ferrocene together with the derivatives, the
authors are able to draw the conclusion on the conformity of the
spectra mentioned, with some characteristics of their structure.
These conclusions helped at the establishment of the structure of
the ferrocene homologues, and rendered possible the precisizing of
structure of the condensation products of the formaldehyde and
other aldehydes with ferrocene. Up to now the first author has
worked out together with E. G. Perevalova (reference 17) two meth-
ods of the determining mentioned in the title, both of which show
limitations. 1.) Catalytic hydrogenation under rigorous conditions
leads to corresponding cyclopentane derivatives, 2.) Bromination

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20-3-21/52

Position of Substituents in Ferrocene Compounds, as Determined From Infra-
red Absorption Spectra

leads to pentabrominecyclopentane in the case of such ferrocene derivatives possessing a non-substituted cyclopentadiene ring. As the condensation products of ferrocene with formaldehyde, according to both methods, do not possess the nonsubstituted rings mentioned, they have structure I (shown at the scheme) and not an isomere - II. The infrared spectra of the ferrocene compounds, according to the high molecular symmetry, are remarked by simplicity. In addition to the C-H-valent oscillations in the range of from 3000 - 3100 cm^{-1} they have only still 4 sufficiently intensive strips; the frequencies at 811 and 1001 cm^{-1} arise according to C-H deformation oscillations. The most intensive bands correspond to the frequencies at 1002 and 1008 cm^{-1} . They were chosen as criterion of determination of position of the substituents. Spectra of ferrocene and of mono-substituted ferrocenes with very different substituents were recorded (table 1 Nr 1 - 16), furthermore, spectra of 7 di-substituted having the substituents notoriously in different rings. Here, frequencies 1002 and 1007 cm^{-1} did not occur. However, they were found as intensive strips in the spectra of the compounds Nr 24 - 28, the fact of which points to the occurring of a free cyclopentadienyl ring. This ring was chemically proved

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20-3-21/52

Position of Substituents in Ferrocene Compounds, as Determined From Infrared Absorption Spectra

by the bromination reaction for the compounds Nr 26 - 28. In presence of surplus bromine a stereoisomeric mixture of pentabromine-cyclopentane with a melting point = $83 - 101^{\circ}$ was isolated out of these 3 substances in tetrachlorinecarbon (at its boiling temperature). Substance Nr 28 has a non-closed structure, because here among others the frequency 1350 cm^{-1} being characteristic for the deformation oscillations of the hydroxyl group was found. Di-substituted ferrocenes (29 - 30) (table 1) have a free cyclopentadienyl ring, because within their spectra occur the frequencies 1002 and 1007 cm^{-1} . At ferrocene compounds containing a carbonyl group conjugated with ferrocene ring, the signification of the frequencies of the $\text{C} = \text{O}$ - group was investigated (table 2). Therefore is to be seen that the frequency of the ketone $\text{C} = \text{O}$ is lying in the range of $1650 - 1678\text{ cm}^{-1}$, the fact of which may be explained by the conjugation of the carbonyl with the cyclopentadienyl ring. There are 2 tables, and 20 references, 11 of which are Slavic.

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20-2-21/52

Position of Substituents in Ferrocene Compounds, as Determined From Infra-red Absorption Spectra

ASSOCIATION: Institute for Elemental-organic Compounds AN USSR
(Institut elementoorganicheskikh soedineniy Akademii nauk SSSR)

SUBMITTED: June 26, 1957

AVAILABLE: Library of Congress

Card 4/4

NESMEYANOV, A.N.

AUTHORS: Nesmeyanov, A. N., Member of the AN USSR, 20-4-22/52
and Tolstaya, T. P.

TITLE: Triphenyloxonium Salts (Sol'i trifeniloksoniya).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 4, pp. 626-628 (USSR)

ABSTRACT: The author succeeded in producing several diarylbromine salts and diarylchlorine salts by decomposition of aryl-diazonium-boron fluorides in bromobenzene or chlorobenzene. The treatise discussed here described the application of this method to the production of tertiary aromatic oxonium salts formerly unknown. Contrary to the trialkyloxonium salts examined by Meerwein triphenyloxonium salts are extremely stable compound with decomposition temperatures higher than 150°. With the exception of chloride and bromide they are hardly soluble in water. Contrary to the trialkyloxonium salts as well as to the chlorine and bromine salts triphenyloxonium salts have only little phenylating effect. So halides and boron fluoride for instance do not cause in any way the phenylation of metallic mercury, and there is no reaction of boron fluoride with copper or thallium. For the phenylation of anions as NO₂' or N₃' it is necessary

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Triphenyloxonium Salts

20-4-22/52

to boil the aqueous solutions for several hours. Under optimal circumstances the result is by 25% - 27%. It is easier to phenylate compounds containing atoms with vacant pairs of electrons. So pyridine is phenylated by nitrogen with a 90% exploit. Diethylamine can only be phenylated in presence of water with an exploit of 60%. Then follows an experimental part with the description of the production reactions and the phenylation reactions of triphenyloxonium salts. There are 1 figure, 1 table, and 5 references, 2 of which are Slavic.

ASSOCIATION: Moscow State University imeni M. V. Lomonosov
(Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova)

SUBMITTED: July 16, 1957

AVAILABLE: Library of Congress

Card 2/2

AUTHORS:

Nesmeyanov, A. N., Academician
Tolstaya, T. P., Isayeva, L. S.

20-6-21/47

TITLE:

Phenylation Reactions by Means of Diphenylbromonium and Diphenylchloronium Salts (Reaktsii fenilirovaniya posredstvom soley difenilbromoniya i difenilkhloroniya).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 6, pp. 996-999 (USSR).

ABSTRACT:

The authors succeeded in producing (reference 1) a number of diaryl-halogenonium-salts, among them diphenylbromonium and diphenylchloronium salts. In the present paper they describe a manipulation by which the yields of these salts may be increased by the tenfold. The behavior of the salts mentioned in the title is completely analogous to that of diphenyliodonium salts. They all represent excellent phenylating reagents which can phenylate as well homolytically (haloid salts) as heterolytically. Homolytic phenylation for example takes place during the action of iodides, bromides and chlorides of all three halogenonium-compounds upon metallic mercury, best in the medium of isopropyl alcohol: $(C_6H_5)_2ClCl + Hg \rightarrow C_6H_5HgCl + C_6H_5Cl$. The surprising preliminary conclusion from the existence of this reaction is the presence of a covalent form of the halides of diphenylbromonium

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Phenylation Reactions by Means of Diphenylbromonium and Diphenyl-
chloronium Salts. 20-6-21/47

mium and diphenylchloronium $(C_6H_5)_2Hal-Hal$, in which the central atom of the halide shall expand its octet to the decet. The phenylation reactions of diphenylbromonium and -chloronium mentioned in the paper (reference 1), an aqueous solution of sodium nitrite may serve as examples of heterolytic phenylation. On that occasion nitrobenzene, potassium cyanide (benzonitrile), sodium hydrazoate and diethylaniline (diethylaniline) form. In these and other cases given here the behavior of all three diphenylhalogenonium compounds was identical. With metallic mercury these salts form haloid phenyl-mercury, which is not the case with the borofluorides, apparently due to the heterolytic decomposition of the latter. Metallic thallium behaves in the inverse manner: the diphenyl-thallium salt only forms with borofluorides of the halogenonium compounds. The relations in this case are completely identical with the results of the reaction of the diazonium salts, therefore the explanation will also be the same. Diazonium-borofluoride also forms organometallic compounds with lead. In order to explain this result with diazonium salts, the first author together with Makarova (reference 3) established the assumption that metals, as nucleophilic reagents, are in a position, like the anions OH^- , CN^- and so on, to transform the diazonium-cation into a diazo-form which

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Phenylation Reactions by Means of Diphenylbromonium and 20-6-21/47
Diphenylchloronium Salts.

homolytically decomposes. An analogous explanation for the halogenonium salts will require the formation of a transition complex with metallic thallium which contains a diphenyl-halogenonium cation in a covalent form (with decet). Mercury which is sufficiently nucleophilic to transform diazonium into a diazo form is not capable of doing the same with the cations of the diphenylhalogenonium compounds, whereas less noble elements are capable of performing both transformations. All facts described can also be explained by the heterolytic decomposition of the onium compounds with a subsequent reduction of the phenylation by metal to a free phenyl radical. But the above-described hypothesis (reference 3) is apparently confirmed by the passivity of the triphenylxonium-ion toward the metals (reference 5). The passivity is caused by an apparent inability of oxygen to expand the octet of the decet. Results of a crystallographic study and an X-ray structural analysis of the halogenonium salts are published by T. L. Khot'syanova. An experimental part with the usual data is given. There are 1 table, and 12 references, 8 of which are Slavic.

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Phenylation Reactions by Means of Diphenylbromonium and
Diphenylchloronium Salts.

20-6421/47

ASSOCIATION:

Institute for Element Organic Compounds AS USSR. Moscow State
University imeni M.V. Lomonosov, (Institut elementoorganicheskikh soye-
dineniy Akademii nauk SSSR. Moskovskiy gosudarstvennyy universitet
M. V. Lomonosova).

SUBMITTED: July 16, 1957.

AVAILABLE: Library of Congress.

Card 1/1

SOV/124-58-4-3616

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 4, p 1 (USSR)

AUTHOR: Nesmeyanov, A. N.

TITLE: Forty Years of Soviet Science (Sorok let sovetskoy nauki)

PERIODICAL: Gaz. "Pravda", 1957, 2 noyabrya, Nr 306, pp 3-4

ABSTRACT: Bibliographic entry

1. Scientific intelligence--USSR

Card 1/1

NESMEYANOV, A. N.

A. N. Nesmeyanov, R. Kh. Freydlina, A. A. Karapetyan and Ye. Ts. Chukovskaya,
"The Thermal Telomerization of Silicon Hydrides with Ethylene."

Report presented at the Second All-Union Conference on the Chemistry and
Practical Application of Silicon-Organic Compounds held in Leningrad from
25-27 September 1958.

Zhurnal prikladnoy khimii, 1959, Nr 1, pp 238-240 (USSR)

NESMEYANOV, A.N.

YEPFANOVA, A.P.; NESMEYANOV, A.N., akademik, glavnyy red.; TOPCHIEV, A.V., akademik, red.; ISAKOVA, O.V., otvetstvennyy red.; LIKHTENSHTEYN, Ye.S., otvetstvennyy red.; SHUNKOV, V.I., otvetstvennyy red.; POLESITSKAYA, S.M., tekhn.red.

Iulian Aleksandrovich Shimanskii. Bibliografiia sostavlena A.P. Epifanovoi. Moskva, 1958. 44 p. (Materialy k biobibliografii uchenykh SSSR, Seriya tekhnicheskikh nauk. Mekhanika, no.8)
(MIRA 11:5)

1. Akademiya nauk SSSR.

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NESTEROVA, N.M., NESMEYANOV, A.N. akademik, glavnyy red.; TOPCHIEV, A.V.,
akademik, zam.glavnogo red.; ISAKOVA, O.V., otv.red.; LICHTEINSTEIN,
Ye.S., otv.red.; SHUNKOV, V.I., otv.red.; TRIFONOV, D.N., red.;
MARKOVICH, S.G., tekhn.red.

Anatoliy Fedorovich Kapustinskiy. Vstup.stat'ya K.B. Iatsimirskogo
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(MIRA 11:9)

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red.; LIKHTENSHTEIN, E.S., otvetstvennyy red.; SHUNKOV, V.I.,
otvetstvennyy red.; MEL'NIKOVA, N.B., red. izd-va; POLNITSKAYA, S.M.,
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NESMEYANOV, A.N.

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Ye.I., red. izd-va; GUSEVA, tekhn. red.

[Translating machines] Avtomaticheskii perevod. Izd.2., perer. i
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(Translating machines)

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akademik, samestitel' glavnogo redaktora; ISAKOVA, O.V., otv.red.;
LIKHTENSHTEYN, Ye.S., otv.red.; SHURKOV, V.I., otv.red.; YEGOROVA,
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red.; SHUNKOV, V.I., otv.red.; PEREL'MAN, V.I., red.fnd-va;
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(MIRA 12:4)

1. Akademiya nauk SSSR.
(Bibliography--Lazarev, Petr Petrovich, 1878-1942)

NEOLINEYANOV, A. N.

PHASE I BOOK EXPLOITATION SOV/5494

Vasil'yev, Mikhail Vasil'yevich, and Sergey Zakharovich Gushchev

Reportazh iz XXI veka; my zapisali rasskazy dvadtsati devyati
sovetskikh uchenykh o nauke i tekhnike budushchego (Reports
From the Twenty-First Century; Stories of Twenty-Nine Soviet
Scientists on Science and Engineering of the Future) [Moscow]
Izd-vo Sovetskaya Rossiya, 1958. 243 p. 50,000 copies printed.

Ed.: V. A. Golubkova; Tech. Ed.: G. I. Kleyeva.

PURPOSE : This book is intended for the general reader.

COVERAGE: The book contains 27 articles (told reporters by
Soviet scientists) dealing with probable future progress in
physics, chemistry, electricity, metallurgy, engineering,
mining, medicine, biology, agriculture, zoology, transportation,
exploration of space, and photography. Attention is given to
automation, automatic underground gasification of coal, use of
new metals, modernization of oil fields, atomic electric stations,
production of metal parts by the process of explosion, explosions

Card 1/7

Reports From the Twenty-First (Cont.)

SOV/5494

in dam construction, cancer, internal longevity reserves, machine diagnoses of illnesses, surgery vs. treatment by ultrasonic vibrations, mechanical heart substitutes, human body banks, "medical engineering," enriched fodder, "superfertilizers", artificial snowfalls, agriculture vs. "mariculture", radiochemistry, power beam vs. wire, machines doing intellectual work, "HF automobiles" (with "radio motors"), "artificial sun" (electromagnetic rays focused above a city which cause heated molecules to shine), future ocean ships, "railway dreadnoughts", Moscow of the future, moving pavements, wheelless and driverless automobiles, electric cameras, the industrialization of Siberia, use of underground heat, climate control, living on the moon, antimatter, and photon jet. Names of the interviewed scientists are given. There are no references.

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Mission Into the Future
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THE FUNDAMENTAL AND MOST IMPORTANT THINGS		
Transformation of Elements -- the Future of Metallurgy [I. P. Bardin, Academician, Vice-President, AS USSR]		25
Mines Are Breathing Their Last [I. S. Garkusha, Director of Vsesoyuznyy nauchno-issledovatel'skiy institut "Podzemgaz" -- All-Union Scientific Research Institute of Underground Gasification of Coal -- and N. A. Fedorov, Deputy Director for the Scientific Section]		34
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NESMEYANOV, A.N.

5(3)

PHASE I BOOK EXPLOITATION

SOV/1589

Akademiya nauk SSSR.

Khimiya bol'shikh molekul; sbornik statey (Chemistry of Large Molecules; Collection of Articles) Moscow, Izd-vo AN SSSR, 1958. 299 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 30,000 copies printed.

Compiler: G.V. Sklovskiy; Resp. Ed.: A.V. Topchiyev, Academician;
Ed. of Publishing House: V.A. Boyarskiy; Tech. Ed.:
I.N. Guseva.

PURPOSE: This book is intended for a wide circle of readers including those who have had no training in chemistry. It can also serve as a manual for propagandists, teachers, and journalists.

Card 1/8

Chemistry of Large Molecules (Cont.)

SOV/1589

COVERAGE: This collection of articles reflects the trend for the future development of the Soviet chemical industry as indicated by the May plenary session of the Central Committee of the Communist Party within the framework of the new Seven Year Plan. These articles were published in newspapers and journals. The authors, scientists and industry workers, developed the theme of accelerated development of the chemical industries, and sciences, with stress on the manufacture of synthetic fibers, plastics, and other materials. Some of the articles were abridged, revised, or enlarged. The articles were selected so as to give an adequate survey of the chemistry and technology of high-molecular-weight compounds and their use in industry, agriculture, and in the manufacture of consumers' goods. Mentioned are raw materials for the production of polymers. This book belongs to the popular-science series of the Academy of Sciences. Similar volumes are intended for future publication. No references are given.

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Chemistry of Large Molecules (Cont.)

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AVAILABLE: Library of Congress

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6-1-59

Card 8/8

AUTHORS: Nesmeyanov, A. N., Fraydlina, R. Kh., Velichko, F.K. 62-1-7/29

TITLE: Synthesis and Properties of the Trichloromethyl and γ,γ -
-Dichloroallyl Compounds of Mercury (Sintez i svoystva
trikhlormetil'nykh i γ,γ -dikhloralil'nykh soyedineniy rtuti)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 1,
pp 40-45 (USSR)

ABSTRACT: After the authors have been occupied for the last years with
the research of the chemical transformations of the trichloro-
methyl- and asymmetric dichlorovinyl group in polychloro-
hydrocarbons (and similar compounds), it was of interest to
investigate the properties of organomercuric compounds which
contain the above mentioned compounds. Interesting is also
the investigation of the properties of the radicals $\text{CCl}_3 \cdot$
and $\text{CCl}_2=\text{CHCH}_2 \cdot$, formed by the decomposition of the
organomercuric compounds. One succeeded hitherto neither ab-
road nor in the USSR in carrying out the synthesis of the
trichloromethyl compounds. The experiments of Karash and
Stavli remained without success. Not even one representative
of the γ,γ -dihaloidallyl organomercuric compounds has
hitherto been described in literature. Bromotrichloromercury
was synthesized by the reaction of mercury with bromotri-

Card 1/2

Synthesis and Properties of the Trichloromethyl and γ, γ -
-Dichloroallyl Compounds of Mercury

62-1-7/29

chloromethane; from the latter hydroxide, chloride, and iodide of the trichloromethylmercury were obtained the normal way. Phenyltrichloromethylmercury was synthesized by the interaction between bromotrichloromethylmercury and dichlorodiphenyl-tin in an alkaline medium. The reaction of same with hydrochloric acid led to the formation of chlorophenylmercury. The halides of trichloromethylmercury form complex compounds with pyridine. The double compound of pyridine with bromotrichloromethylmercury outlasts the recrystallization and shows a composition of $\text{CCl}_3\text{HgBr} \cdot \text{C}_5\text{H}_5\text{N}$. Ammonia and hydrogen sulfide destroy completely the halides of trichloromethylmercury. 3-iodide mercury-1 and 1-dichloropropene-1 were synthesized by reaction of 3-iodide-1, 1-dichloropropene-1, and mercury under action of ultraviolet light; from it 3-chloromercury- and 3-bromomercury-1, 1-dichloropropene-1 was obtained the usual way. There are 13 references, 6 of which are Slavic.

Card 2/2

ASSOCIATION: Institute of Elemental-Organic Compounds, AS USSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR).
July 14, 1956

SUBMITTED: 1. Mercury compounds (Organic)-Synthesis 2. Mercury compounds (Organic)-Properties

NESMEYANOV, A. N.

AUTHORS: Nesmeyanov, A. N., Kost, V. N.,
Vasil'yeva, T. T., Freydlina, R. Kh. 62-2-4/28

TITLE: The Synthesis of α -Haloidcarboxylic Acids Containing Reactive Groups in the ω -Position (Sintez α -galoidkarbonovykh kislot, soderzhashchikh v ω -polozhenii reaktsionnosposobnyye gruppy).

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958, Nr 2, pp. 152-156 (USSR).

ABSTRACT: As was already shown (references 1,2) α -perchloric acids can easily be produced in a sulfate medium by the action of chlorine upon compounds containing a $\text{CCl}_2 = \text{CH}$ -group. A similar reaction also takes place in perchloric acid. In the series of cases hitherto investigated the experiment failed in the medium of phosphoric acid and acetic acid (reference 2). The employment of this method in compounds possessing no stable groups in a medium of strong acids is therefore not possible. In the present work it was found that the compounds of the type $\text{CCl}_2 = \text{CX}(\text{CH}_2)_n \text{Y}$ (where X is a halide or H, and where Y represents various groups) interact with acetic acid and the halide in the presence of mercury acetate after treatment with H_2O . On this occasion α -haloidcarboxylic acids or .

Card 1/2

The Synthesis of α -Haloidcarboxylic Acids Containing Reactive Groups in the ω -Position. 62-2-4/28

α, α -dihaloidcarboxylic acids form.

In this manner the following acids were produced:

$\text{Cl}(\text{CH}_2)_3\text{CHClCOOH}$; $\text{Cl}(\text{CH}_2)_3\text{CHBrCOOH}$; $\text{CH}_3\text{COO}(\text{CH}_2)_3\text{CHClCOOH}$;

$\text{CN}(\text{CH}_2)_3\text{CHClCOOH}$; $\text{CH}_3\text{COOCH}_2\text{CHClCOOCH}_3$; $\text{CH}_3\text{OCH}_2\text{CHClCOOH}$;

$\text{C}_6\text{H}_5\text{CH}_2\text{CHClCOOH}$; $\text{Cl}(\text{CH}_2)_3\text{CCl}_2\text{COOH}$.

There are 6 references, 5 of which are Slavic.

ASSOCIATION: Institute for Element-Organic Compounds AN USSR (Institut elementoorganicheskikh soedineniy Akademii nauk SSSR).

SUBMITTED: September 25, 1956

AVAILABLE: Library of Congress

1. Perchloric acids 2. α -Haloidcarboxylic acids-Synthesis

Card 2/2

NESMEYANOV, N.N.

62-2-23/28

AUTHORS: Nesmeyanov, A. N., Kochetkova, N. S.,

TITLE: The Interaction of Ferrocene With Olefines (Vzaimodeystviye ferrotsena s olefinami)

PERIODICAL: Izvestiya AN SSSR Otdeleniya Khimicheskikh Nauk, 1958, Nr 2, pp. 242-242 (USSR)

ABSTRACT: In earlier papers (references 1-3) the authors described the alkylation of ferrocene by alkyl halides (reaction according to Fiedel'-Krafts). In the present paper the authors describe the alkylation of ferrocene by means of ethylene and propylene, as well as the polyalkylation by isobutylene in the presence of dehydrated aluminum chloride. The reactions took place in a rotating autoclave (at 100-150°C) in the presence of aluminum chloride (10-20%). Thus a mixture of ethylferrocene (20,5%), diethylferrocene (5,5%) and polyethylferrocene (4,5%) was obtained. Furthermore under the action of propylene a mixture of i-propylferrocene (30%), boiling point 106-107°C, di-i-propylferrocene (13,8%), boiling point 135-136°C, as well as polyisopropylferrocene (13,3%), boiling point 150-160°C was obtained. By the influence of isobutylene it was possible to ob-

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The Interaction of Ferrocene With Olefines

62-2-23/23

tain tri-*i*-butylferrocene (43,5%), melting point 88°C and tetra-*t*-butylferrocene (21,4%), boiling point 195-200°C. The measurement of the IR-spectra of tri-*i*-butylferrocene and tetra-*t*-butylferrocene showed the absence of the characteristic frequencies within the range of 1000 and 1107 cm^{-1} ; consequently alkyl groups exist in these substances in both nuclei of cyclopentadiene. The IR-spectrum of pentamethylferrocene, however, shows the characteristic frequencies within the range of 1003 and 1107 cm^{-1} , and thus combines all 5 methyl-groups in one nucleus of cyclopentadiene. There are 3 Slavic references.

ASSOCIATION: Institute for Element-Organic Compounds AN USSR (Institut elementoorganicheskikh soedineniy Akademii nauk SSSR)

SUBMITTED: October 5, 1957

AVAILABLE: Library of Congress

1. Ferrocene-Exchange reactions
2. Olefines-Exchange reactions
3. Aluminum chloride catalyst-Applications

Card 2/2

NESMEYANOV, A.N.

25-58-3-1/41

AUTHOR: Nesmeyanov, A.N., Academician, President of the USSR Academy of Sciences

TITLE: Synthesis of Sciences (Na styke nauk)

PERIODICAL: Nauka i Zhizn', 1958, Nr 3, pp 1-2 (USSR)

ABSTRACT: The author notes the existence of two simultaneous related tendencies in the development of sciences, that of the differentiation of different branches, and that of the interpenetration of methods of sciences often far removed from one another. Indeed, the interaction of different sciences may result in their respective differentiation, while the greatest development of science as a whole lies in resulting boundary sciences. Thus this second, synthesizing tendency is especially important at the present time, and the author sees in it the key to the future scientific and technical progress of the USSR. To this end, because of the difficulty of training scientists in more than one specialized field, he recommends the proper organization of information on methods and results in one scientific branch, so that they may benefit all scientists. This would be achieved by collective work, scientific periodicals and personal contacts. He concludes by praising Nauka i Zhizn' for its initiative in this respect in

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Synthesis of Sciences

25-58-3-1/41

... devoting a whole issue to problems of synthesis.

ASSOCIATION: USSR Academy of Sciences

AVAILABLE: Library of Congress

Card 2/2 1. Science-Synthesis

NESMEYANOV, A. N.

AUTHOR: Zharovskiy, I. M., Corresponding
Member, Academy of Sciences, USSR

SOV/156-58-4-1/49

TITLE: On the Forthcoming VIII Mendeleev Congress
(O predsto-yashchem VIII Mendeleyevskom s"yezde)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya
tehnologiya, 1958, Nr 4, pp 613-616 (USSR)

ABSTRACT: In March 1959, the VIII Mendeleev Congress for General and
Applied Chemistry will take place in Moscow. The program of this
congress comprises important problems of general and applied
chemistry and is held in memory of the scientist Mendeleev.
175 plenary reports on problems concerning the present stage of
chemistry will be given at this congress. Basic chemical problems
will be discussed. In the first plenary meeting A. N. Nesmeyanov,
President of the Academy of Sciences, will hold a lecture on the
"Periodic Law and Present Stage of Organic Chemistry".
W. S. Fedorov, President of the State Committee of Chemistry at
the Council of Ministers of the USSR, will deliver a lecture on
new problems for the development of chemo-technological progress
in industry. Under the supervision of well-known scientists more
than 1250 reports and lectures on new investigations of

Card 1/2

On the Forthcoming VIII Mendeleyev Congress

SOV/156-58-4-1/49

theoretical and experimental problems will be delivered.
Numerous papers will be submitted also by non-Soviet
scientists, both from the Eastern bloc and from the West.

Card 2/2

3-58-7-33/36

AUTHOR: Nesmeyanov, A. N.^N President of the Academy of Sciences of the USSR
TITLE: The Interrelation of Sciences (Vzaimosvyaz' nauk)
PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 7, p 88 (USSR)
ABSTRACT: Under the general heading "Budushcheye vysshego obrazovaniya" ("The Future of Higher Education"), the president of the Academy of Sciences of the USSR, Professor A. Nesmeyanov expresses his opinion on the interrelation of sciences. He is against a too narrow specialization of students. This specialization must be based on the fundamental knowledge of the field chosen by the student. The student must be given more independence in choosing his speciality, more initiative in building his own plan of studies. Many sciences are closely interrelated, and a good specialist has to know both parts of the subject. For instance an engineer of any speciality has to know the basic sciences of automation and electronics.

Card 1/1

AUTHORS: Nesmeyanov, A. N., Vasil'yeva, Ye. I., SOV/62-58-7-6/26
Freydlina, R. Kh.

TITLE: ω, ω' -Imino Dicarboxylic Acids and Some of Their Derivatives
 (ω, ω' -Iminodikarbonovyye kisloty i nekotoryye ikh proizvodnyye)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk,
 1958, Nr 7, pp 836 - 840 (USSR)

ABSTRACT: In the present paper the authors describe the synthesis of the
 dicarboxylic acids of the type $A [(CH_2)_n COOH]_2$, where A re-
 presents NH , and n is equal to 6, 8, 10 (as well as their N- and
 O-derivatives). In publications the imino dicarboxylic acids,
 the ω, ω' -iminodipropionic and ω, ω' -iminodieneanthylic acids
 (Ref 5) of these compounds have been described. Proceeding from
 the ω -chlorocarboxylic acids the authors produced ω, ω' -imino
 dicarboxylic acids as well as their N- and O-derivatives. They
 investigated in detail the chemical reactions of ω, ω' -imino di-
 eneanthylic acid. The following derivatives were obtained from
 this acid: diethyl ester, the N-acetyl derivative, the N-methyl
 derivative of the acids and their esters, the monoethyl ester of
 the monoamide, the chlorohydrate of the diamide and the chloro-

Card 1/2

α, ω' -Imino Dicarboxylic Acids and Some of Their
Derivatives

SOV/62-58-7-6/26

hydrate of the monoethyl ester of N-methyl-imino dieneanthylic
acid. There are 7 references, 5 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Elemental-organic Compounds, AS USSR)

SUBMITTED: December 25, 1956

Card 2/2

AUTHORS: ~~Nesmeyanov, A. V.~~ Zakharkin, L. I., SOV/62-58-7-7/26
 Freydlina, R. Kh.

TITLE: Amines Containing the CCl_3 Group and Their Basicity (Aminy, soderzhashchiye CCl_3 -gruppu i ikh osnovnost')

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 7, pp 841 - 845 (USSR)

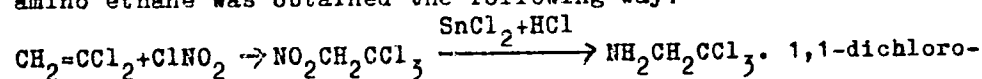
ABSTRACT: The aim of the present paper was the explanation of the influence of the CCl_3 group on the basicity of the amino group in the $\text{NH}_2(\text{CH}_2)_n\text{CCl}_3$ series. The values of the dissociation constants K_b obtained are shown in table 1. The dissociation constants K for ethyl amine, propyl amine and n.butyl amine amount to $3,4 \cdot 10^{-4}$ (25°), $4,7 \cdot 10^{-4}$ (25°), $4,1 \cdot 10^{-4}$ (25°). It may be seen that by the introduction of the trichloro-methyl group instead of the methyl group the amino basicity is decreased by the 10^4 fold if the CCl_3 and NH_2 group is divided by a methylene group. If the CCl_3 group is compared to the CCl_2CH group it may be seen that the former has a considerably greater induction effect (of the electron acceptor) than the latter. The amine

Card 1/3

Amines Containing the CCl_3 Group and Their Basicity

SOV/62-58-7-7/26

synthesis was achieved the following way: 1,1,1-trichloro-3-aminopropane, 1,1,1-trichloro-4-aminobutane, and 1,1-dichloro-4-aminobutene-1 were obtained from the corresponding carboxylic acids under the action of nitrous hydrogen acid in the presence of concentrated sulfuric acid. The amine yield is, however, small due to the side reactions of the dehydrochlorination and the hydrolysis under the action of sulfuric acid. 1,1,1-trichloro-2-amino ethane was obtained the following way:



3-aminopropene-1 was synthesized by means of the action of hexamethylene tetraamine on 1,1,3-trichloro-propene-1 with a subsequent adduct decomposition by hydrochloric acid.

Conclusion: The dissociation constants of the amines of the $\text{CCl}_3(\text{CH}_2)_n\text{NH}$ series were measured, with n being equal to 1-4, and the $\text{CCl}_2=\text{CH}(\text{CH}_2)_n\text{NH}_2$ series, with n being equal to 1,2.

There are 2 tables and 5 references, 4 of which are Soviet.

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Amines Containing the CCl_3 Group and Their Basicity

SOV/62-58-7-7/26

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Elemental-organic Compounds, AS USSR)

SUBMITTED: December 28, 1956

Card 3/3

SOV/30-58-8-2/43

AUTHOR: Nesmeyanov, A. N., President of the Academy of Sciences, USSR,
Member, Academy of Sciences, USSR.

TITLE: Acceleration of the Development of Chemical Industry, in
Particular of the Production of Synthetic Materials and of
Synthetic Products to Cover the Demand of the Population and
of National Economy, and the Tasks of the AS, USSR (Ob
uskorenii razvitiya khimicheskoy promyshlennosti i osobenno
proizvodstva sinteticheskikh materialov i izdeliy iz nikh
dlya udovletvoreniya potrebnostey naseleniya i nuzhd narodnogo
khozyaystva i zadachakh Akademii nauk SSSR)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 8, pp. 4-18 (USSR)

ABSTRACT: In the course of the next 7 years 100 billion Roubles will be
invested for the development of the industry of synthetic
materials. The profitableness of the synthetic method is also
illustrated by various examples. It is stated that at present
synthetics are no more an "Ersatz", but can, in many cases,
be considered as irreplaceable. The properties of a number of
synthetics are listed and possibilities of reducing wood and

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SOV/30-58-8-2/43

Acceleration of the Development of Chemical Industry, in Particular of the Production of Synthetic Materials and of Synthetic Products to Cover the Demand of the Population and of National Economy, and the Tasks of the AS, USSR

metal consumption are pointed out. High-molecular compounds are of special interest, as they combine the properties of gases, liquids and of solids. The present state of science permits the production of a few types of high-molecular compounds only. The importance of the so-called block polymers and of the synthesis of albumin is underlined. High-molecular compounds are considered by the author to represent a new stage of development of a whole comprehensive group of sciences of physics, chemistry, biochemistry and biology. A determination of the relation between molecule structure and the properties of the polymers is the basic line of physical research dealing with high-polymers. A general introduction of these new materials into engineering requires an exact knowledge of their mechanical properties. Stress is also laid upon the importance of solutions and mixtures of polymers. Problems concerning the purity of the initial chemical substances are very important. The establishment of the theoretical foundations for the use of polymers in manufacturing is another

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SOV/30-58-8-2/43

Acceleration of the Development of Chemical Industry, in Particular of the Production of Synthetic Materials and of Synthetic Products to Cover the Demand of the Population and of National Economy, and the Tasks of the AS, USSR

important problem. For the purpose of coordinating all forces on this field a Committee for Polymers was established at the Department of Chemical Sciences AS, USSR. This committee is entrusted with the supervision and coordination of this work. The Institut vysokomolekulyarnykh soyedineniy (Institute of High-Molecular Compounds) is to be enlarged and the staff is to be reinforced. As petroleum is to be considered as the raw material for these synthetic substances it is necessary to establish an (Institute for Petroleum Chemical Synthesis) Institut neftekhimicheskogo sinteza within the Academy on the basis of the Institut nefti (Petroleum Institute). It is also counted upon a further development of organic chemistry research in the Kazan' and Ufa branches. The Institut elementoorganicheskikh soyedineniy (Institute for Elemental-Organic Compounds), the Institut khimii silikatov (Institute for Silicate-Chemistry), the Fiziko-tekhnicheskiy institut (Institute for Physics & Technology), the Institut fizicheskoy khimii (Institute for Physical Chemistry) as well as the Institut khimicheskoy fiziki (Institute for

Card 3/4

SOV/30-58-8-2/43

Acceleration of the Development of Chemical Industry, in Particular of the Production of Synthetic Materials and of Synthetic Products to Cover the Demand of the Population and of National Economy, and the Tasks of the AS, USSR

Chemical Physics) will have to be adapted to the field of the synthesis of high polymers. The establishment of an Institut prirodnikh organicheskikh soyedineniy (Institute of Natural Organic Compounds) as well as an Institut belka (Institute of Albumin) is considered to be necessary.

Card 4/4

AUTHOR: Naamayev, A. N., Member, Academy of Sciences, SOV/29-58-8-6/23
President of the Academy of Sciences, USSR

TITLE: Chemistry - the Science of Abundance (Khimiya - nauka izobiliya)

PERIODICAL: Tekhnika molodezhi, 1958, Nr 8, pp. 8-9 (USSR)

ABSTRACT: The materials which men have won from natural sources since times immemorial, and which have been utilized for human requirements are metals, stones, and organic substances. The latter are carbonaceous, high-molecular substances such as leather, wool, skins, timber, basswood, and other vegetable fibers. It was found that such high-molecular substances with properties that are even more valuable than those of natural substances can be produced by chemical means. First of all, it was possible to improve natural high-molecular substances as for instance by tanning; other chemical modifications are the production of cellulose ether and -ester, celluloid, acetate fibers, and viscose. Furthermore, it has become possible to produce high-molecular substances synthetically from low-molecular ones. The first of these substances was probably bakelite, which was produced at the beginning of the 20th century. A long way had to be covered by science before it was

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Chemistry - the Science of Abundance

SOV/29-58-8-6/23

possible to work in this entirely new field, for here it was not possible to apply traditional notions or old-established experimental methods. The result was the development of the chemistry of the synthetization of high-molecular compounds and the corresponding chapters relating to the physics of solids. Industrial production of high-molecular substances is making great progress in all progressive countries, and this development is to be accelerated even more in the USSR. Within 7 years these branches of industry must be developed to such an extent and so rapidly that the level of the USA, which has by far surpassed all other countries in this respect, is attained. Great and promising perspectives offer themselves to science, for high-molecular compounds are as yet only in the first stage of their development. There are 5 figures.

1. Chemical industry---USSR
2. Synthetic materials
3. Organic compounds

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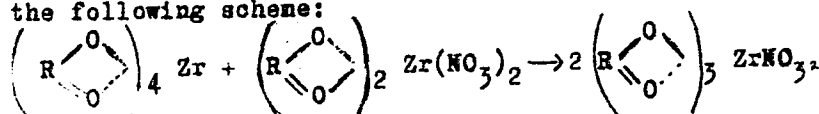
SOV/62-58-8-4/22

AUTHORS: Braynina, E. M., Freydlina, R. Kh., Mesmeyanov, A. K.

TITLE: The Reaction of the Reverse Disproportioning Within the Series of Chelate Zirconium Compounds (Reaktsiya, obratnaya disproporcionirovaniya, v ryadu kleshneobraznykh soyedineniy tairkoniya)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 8, pp. 937-940 (USSR)

ABSTRACT: In the previous paper some exchange reactions of chelate zirconium compounds were described. In the present paper the authors describe other reactions of the same type. The reaction of the reverse disproportioning realized by the example of the interaction of zirconium tetraacetyl acetate with the di-nitrate of zirconium diacetyl acetate was of the greatest interest to the authors. The reaction took place according to the following scheme:



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SOV/62-58-8-4/22

The Reaction of the Reverse Disproportioning Within the Series of Chelate Zirconium Compounds

where $R\begin{smallmatrix} O \\ \diagup \diagdown \\ O \end{smallmatrix}$ represents the acetylacetone residue (or the benzoyl acetone residue, respectively). This reaction may be applied to chelate zirconium compounds. Mononitrates of zirconium triacetyl acetate and of zirconium tribenzoyl acetate were obtained by the interaction of zirconium tetraacetyl acetate and zirconium tetrabenzoyl acetate with the corresponding dinitrates. These mono- and dinitrates can form binary compounds with benzoyl and dioxane. There are 6 references, 3 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Elemental- Organic Compounds, AS USSR)

SUBMITTED: January 15, 1957

Card 2/2

SOV-26-58-9-2/42

AUTHOR: Nesmeyanov, A.N., Academician, President of the AS USSR

TITLE: On the Faster Development of the Chemical Industry and, in Particular, the Production of Synthetic Materials and Articles Made of Them for the Satisfaction of the Requirements of the Population and the Demands of the National Economy and on the Missions of the Academy of Sciences of the USSR (Ob uskorenii razvitiya khimicheskoy promyshlennosti i osobenno proizvodstva sinteticheskikh materialov i izdeliy iz nikh dlya udovletvoreniya potrebnostey naseleniya i nuzhd narodnogo khozyaystva i zadachakh Akademii Nauk SSSR).

PERIODICAL: Priroda, 1958, Nr 9, pp 3-14 (USSR)

ABSTRACT: It is intended to invest 100 billion rubles into the Soviet chemical industry (with stress on the synthetic materials and products) between 1959 and 1965. In 1957 Soviet chemical production was 5 times that of 1940. But Soviet chemical industry is mainly based on the production of acids, soda, ammonia, fertilizers and similar products and synthetic rubber, while that of high-molecular synthetic materials is still insignificant as compared with that of USA and other Western countries. Therefore, the production increase of the most important chemical products between 1959 and 1965 in the USSR should not be less than 2 to 3 times, that of plastics and chemical fibers 4.5 to 8 times, that of the capacity for the production of synthetic

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SOV-26-58-9-2/42

On the Faster Development of the Chemical Industry and, in Particular, the Production of Synthetic Materials and Articles Made of Them for the Satisfaction of the Requirements of the Population and the Demands of the National Economy and on the Missions of the Academy of Sciences of the USSR

rubber 3.4 times. For the consumer goods sector, synthetic fiber production of cotton textiles is to be increased by 6 times, knitted fabrics 9, woolen fabrics 2.3, artificial karakul 14 and for the production of imitation leather 2.3 times. The use of plastics in automobiles is to be increased 8 times by 1965 as compared with 1958. The ratio of chemical fibers in the fabrics of tires will be 80% of the total production in 1965 as compared with the 42.5% of 1957. 24,000 tons of pipes made of polyethylene will be produced in 1965. The production of slabs made from wood shavings will be 3.5 million cubic m a year by 1965, that of linoleum 90 million cubic m. The planned figures will approximately equal the present relevant production quota in the USA. In order to organize and coordinate the complex preparations necessary for the production of high-molecular synthetic materials, the Soviet po polimeram (Council on Polymers) was established at the Otdeleniye khimicheskikh nauk AN SSSR (Chemical Sciences Department of AS USSR). All relevant institutes will undergo

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SOV-26-58-9-2/42

On the Faster Development of the Chemical Industry and, in Particular, the Production of Synthetic Materials and Articles Made of Them for the Satisfaction of the Requirements of the Population and the Demands of the National Economy and on the Missions of the Academy of Sciences of the USSR

great changes in size, equipment and research methods. This will apply specifically to the Institut vysokomolekulyarnykh soyedineniy (Institute of High-Molecular Compounds). As oil is a raw material base for the synthesis of high-molecular materials, an Institut neftekhimicheskogo sinteze (Institute of Oil-Chemical Synthesis) with the fundamental task to utilize oil for the synthesis of monomers and polymers must be set up within the organization of the AS. The Institut elementoorganicheskikh soyedineniy (Institute of Element-Organic Compounds) will increase its work in the field of elemento-organic high-molecular compounds. The Institut khimii silikatov (Institute of the Chemistry of Silicates) took up new work on the synthesis of inorganic high-polymers. The Fiziko-tekhnicheskiy institut (Physico-Technical Institute) concentrates a large group on the study of the density and physical properties of the polymers on theoretical and experimental levels. The Institut fizicheskoy khimii (Institute of Physical Chemistry) will open a department of polymers and dispersed systems and press work on the catalytical synthesis of monomers, macrokinetics of catalytical processes, utilization

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SOV-26-58-9-2/42

On the Faster Development of the Chemical Industry and, in Particular, the Production of Synthetic Materials and Articles Made of Them for the Satisfaction of the Requirements of the Population and the Demands of the National Economy and on the Missions of the Academy of Sciences of the USSR

of radiation in polymerization, vulcanization and the effect of radiation on polymers. The Institut organicheskoy khimii (Institute of Organic Chemistry) devotes its efforts to the synthesis of monomers by catalytical processes with utilization of radiation. The practical manifold use of the developed materials must be studied jointly by chemists and specialists in the field of technical sciences. Institutes working out the problems of natural high-molecular compounds must be set up, primarily an Institut prirodnikh organicheskikh soyedineniy (Institute of Natural Organic Compounds) and an Institut belka (Albumin Institute). In this connection, also the work of biochemists, biophysicists, microbiologists, virusologists and geneticists must be expanded.

1. Chemical industry--USSR

Card 4/4

AUTHOR: Nesmeyanov, A. N., Member, Academy of Sciences, USSR, President of the AS USSR SCV/29-58-10-9/28

TITLE: Front of Science (Front nauki) To a Young Man Starting a Scientific Career (Melodomu cheloveku, vstupayushchemu v nauku)

PERIODICAL: Tekhnika molodezhi, 1958, Nr 10, pp 10 - 11 (USSR)

ABSTRACT: This is an appeal addresses to the youth of the USSR. Among other things the author notes: It has always been a feature in the history of science that individual fields were intimately linked and one supplemented the other and vice versa. It has, however, never been the case that individual fields of science were so closely linked as today. There have never before been so many overlapping fields of science. At present physics is the pace maker in the field of science. Physics is immediately followed by chemistry, especially by the chemistry of substances with a high molecular weight. According to the author's opinion biology will take the lead in science during the following decades. It is a fact that life

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Front of Science. To a Young Man Starting a Scientific Career SO7/29-58-1e-9/28

takes the first place in people's interest. Control over the world can only be achieved by understanding the world, and thus progress is accelerated. It may be observed how the scales of time and space change. Not by words but by actions mankind entered the cosmic era of existence. Things which were in former times regarded as phantastic exist now in reality. There can be no doubt that our generation will witness the first flight to the moon. The characteristic features of modern science are two processes which are in contrast. On the one hand it is the clear separation of the individual fields of science and a specialization and on the other hand - as already mentioned - an intimate merger of the different fields of science. A research worker who wants to make his contribution not only in a very limited field must keep a watchful eye on all fields of science. This is a tough but unavoidable demand. A young man who starts a scientific career must above all feel a liking for and an inexhaustible interest in the secrets of nature and the ways and means of their

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Front of Science. To a Young Man Starting a Scientific Career SOV/29-58-10-9/28

control. He must be able to work hard and he must be patient. He must find out how to tackle problems from a different aspect. It is not enough when he hears lectures and studies books, his mind must be active. As soon as the brain works the memory works by itself.

Card 3/3

AUTHORS: Nesmeyanov, A. N., Freydina, R. Kh., SOV/62-58-10-6/25
~~Kost, V.N.~~

TITLE: Homolytic Isomerization of 1,1,1-Trichloro-2-Bromo Propene
 (Gomoliticheskaya izomerizatsiya 1,1,1-trikhlor-2-brompropena)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
 1958, Nr 10, pp 1199-1204 (USSR)

ABSTRACT: The possibility of regrouping the free radicals in solutions has been proved in several papers (Refs 4-9). In a number of other papers (Refs 9, 11, 12) it was shown that the neopentyl radical can be isomerized. Therefore in publications data are given that contradict each other with respect to the possibility of a regrouping of the radicals (at the expense of the migration of methyl groups). In the present paper the authors report on the homolytic isomerization of 1,1,1-trichloro-2-bromo propene in 1,1,2-trichloro-3-bromo propene-1 according to the scheme



Furthermore the authors deal with a case of homolytic isomerization of $\text{CCl}_3\text{CBr} = \text{CH}_2$ discovered by themselves. They

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Homolytic Isomerization of 1,1,1-Trichloro-2-Bromo
Propene

SOV/62-58-10-6/25

show that 1,1,1-trichloro-2-bromo propene executes the allyl regrouping (under the action of antimony pentachloride or aluminum chloride). Then 1,1,3-trichloro-2-bromo propene-1 is formed. Under the action of caustic potash on 1,1,1-trichloro-2,3-dibromo propene in ethyl-cellosolve medium the 1,1,1-trichloro-2-bromo propene was obtained as the only product of the reaction. Its isomerization takes place in a homolytic way under the action of ultraviolet rays and with a simultaneous formation of 1,1,2-trichloro-3-bromo propene; 1,1,1-trichloro propene isomerizes according to the heterolytic way under the action of antimony pentachloride with the simultaneous formation of 1,1,3-trichloro-2-bromo propene. There are 22 references, 5 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elementary Organic Compounds, Academy of
Sciences, USSR)

SUBMITTED: March 7, 1957
Card 2/2

AUTHORS: Nesmeyanov, A. N., Freydlina, R. Kh., SOV/62-58-10-7/25
Kost, V. N.

TITLE: Bromination of 1,1,1-Trichloropropene
(Bromirovaniye 1,1,1-trikhlorpropena)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1958, Nr 10, pp 1205-1207 (USSR)

ABSTRACT: Two of the authors mentioned above together with Firstov described in an earlier paper the bromination of 1,1,1-trichloropropene (Ref 1). In a later paper they found the regrouping of the intermediately forming free radical (Ref 2) when investigating the reaction of hydrogen bromide and bromo-trichloromethane with 1,1,1-trichloropropene in the presence of benzoyl peroxide. It was assumed that (dependent on the conditions of reactions) the bromination of 1,1,1-trichloropropene takes place without regrouping (electrophilic reaction) or with it (homolytic reaction). The authors of the present paper investigated the reaction of the bromination of 1,1,1-trichloropropene and obtained the following results: In highly polar media the reaction takes place well defined with the simultaneous formation of the normal

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Bromination of 1,1,1-Trichloropropene

SOV/62-58-10-7/25

combination product of 1,1,1-trichloro-2,3-dibromopropane. If the reaction is carried out in unpolar media 1,1,2-trichloro-1,3-dibromo propane (due to the homolytic isomerization of the not intermediately formed free radical $\text{CCl}_2\dot{\text{C}}\text{H} - \text{CH}_2\text{Br} \rightarrow \dot{\text{C}}\text{Cl}_2\text{CHCl} - \text{CH}_2\text{Br}$) is formed. There are 6 references, 5 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Elementary Organic Compounds, Academy of Sciences USSR)

SUBMITTED: March 7, 1957

Card 2/2

SOV/24-58-11-1/42

AUTHORS: ~~Nesmeyanov, A. N.~~, Academician, President Ac.Sc., USSR,
Topchiyev, A. V., Chief Scientific Secretary, Presidium
Ac.Sc., USSR and Blagonravov, A.A., Academician, Secretary,
Technical Science Section, Ac.Sc. USSR

TITLE: Academician I. P. Bardin, Commemorating his 75th Birthday

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh
Nauk, 1958, Nr 11, pp I-II (USSR)

ABSTRACT: Letter of congratulation on his work and achievements.

SUBMITTED: November 13, 1958

Card 1/1

SOV/24-58-11-5/42

AUTHORS: ~~Nesmeyanov, A. N.~~, Academician, President Ac.Sc., USSR;
Topchiyev, A. V., Chief Scientific Secretary, Presidium
Ac.Sc., USSR and Blagonravov, A. A., Academician, Secretary,
Technical Science Section, Ac.Sc. USSR

TITLE: Academician A. N. Tupolev

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh
Nauk, 1958, Nr 11, p 3 (USSR)

ABSTRACT: Letter of congratulation on the occasion of his
70th birthday.

SUBMITTED: November 10, 1958

Card 1/1

29(0)
 AUTHOR: Nesmeyanov, A. N., Member, Academy of Sciences, USSR SOV/50-58-11-1,48

TITLE: Great Achievement of Soviet Science (Velikoye zavoyevaniye sovetskoy nauki)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 11, pp 3-9 (USSR)

ABSTRACT: This article reports an address given by the author on October 3, 1958, in Moscow at a meeting of scientists and representatives of the public on the occasion of the first anniversary of the launching of the first artificial earth satellite. This launching is called the beginning of a new era marked by man entering interplanetary space. It also proves the high level of Soviet science in the field of mathematics, physics, chemistry, and metallurgy. N. S. Khrushchev called the Soviet artificial earth satellites the messengers of socialist achievements. The successful launching of the Soviet earth satellites ~~confirmed~~ all calculations and constructive solutions of scientists. Soviet scientists do not conceal the scientific results obtained and are prepared to share their achievements with the scientists of the world. By means of the three Soviet artificial earth satellites the following subjects are to be

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SOV/30-58-11-1/48

Great Achievement of Soviet Science

investigated: ionosphere, cosmic radiation, ~~solar~~ radiation, magnetic measurements, some parameters of the upper atmosphere, biological researches, meteoric danger. In all these fields substantial results have been obtained. It turned out that the earth is surrounded by fast-moving electrons ~~as~~ by an aureola held by the ~~terrestrial magnetic field~~. The fact that the earth satellites have ~~survived~~ several thousand rotations round the earth without any damage proves that the danger from meteors is not very great. The author mentions as tasks for the nearest future: creation of so-called "eternal" artificial earth satellites, which will rotate round the earth for almost unlimited time; creation of guided artificial earth satellites in order to bring about such scientific experiments as cannot be carried out from the earth; the problem of returning of an artificial satellite or part of it to the earth; the problem of launching a manned earth satellite; the problem of creation of artificial earth satellites following orbits with especially high apogees; reaching the moon or other celestial bodies by rockets. Creation of a satellite with an interplanetary station where a considerable number of men could stay for some time, is mentioned as long-range plan. Communication between this

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SOV/30-58-11-1/48

Great Achievement of Soviet Science

satellite and the earth could be maintained by means of a special rocket. Such a station could serve as starting point for interplanetary flights, especially for reaching the planets Mars and Venus. At last the author expressed the opinion that the time is not so far away when rockets will be employed instead of earth satellites in order to carry out interplanetary flights.

Card 3/3

NESMEYANOV, A.N., akademik; TOPCHIEV, A.V.; akademik; BLAGONRAVOV, A.A.,
akademik.

To Academician Andrei Nikolaevich Tupolev twice honored as a
hero of socialist labor. Izv. AN SSSR. Otd. tekhn. nauk no.11:
4, 8 '58. (MIRA 12:1)

1. Prezident AN SSSR (for Nesmeyanov). 2. Glavnyy uchenyy sekretar'
Prezidiuma AN SSSR (for Topchiyev). 3. Akademik-sekretar' Utdeleniya
tekhnicheskikh nauk AN SSSR (for Blagonravov).
(Tupolev, Andrei Nikolaevich, 1888-)

SOV/24-58-11-3/42

AUTHORS: Nesmeyanov, A. N., Academician, President Ac.Sc., USSR,
Topchiyev, A. V., Chief Scientific Secretary, Presidium
Ac.Sc., USSR and Blagonravov, A. A., Academician, Secretary,
Technical Science Section, Ac.Sc. USSR

TITLE: Academician A. M. Terpigorev

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh
Nauk, 1958, Nr 11, p V (USSR)

ABSTRACT: Letter of congratulation on the occasion of his
85th birthday and the 60th anniversary of his scientific
and teaching activities.

SUBMITTED: November 21, 1958

Card 1/1

5(3)

AUTHORS:

Nesmeyanov, A. N., Reutov, O. A.,
Loseva, A. S., Khorlina, M. Ya.

SOV/62-58-11-7/26

TITLE:

Synthesis of Organo-Mercury Compounds From Hydrazones
(Sintez rtutnoorganicheskikh soedineniy iz gidrazonov)
Communication I. Interaction of Hydrazones of Aliphatic
Aldehydes and Ketones With Mercury Acetate (Soobshcheniye 1.
Vzaimodeystviye gidrazonov al'degidov i ketonov
alifaticheskogo ryada s uksusnokisloy rtut'yu)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1958, Nr 11, pp 1315-1326 (USSR)

ABSTRACT:

Earlier, hydrazones - a group of easily accessible compounds -
have not been used for the synthesis of organometallic
compounds. It is demonstrated in the present paper that the
reaction of hydrazones of acetaldehyde, acetone, methyl-ethyl
ketone, and butyrone with mercury acetate in aqueous methanol
and absolute benzene medium may serve for the production of
some new types of organo-mercury compounds. The reaction
investigated takes place according to that of a "conjugated
compound" under participation of the medium.

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α, α' -dimercury or $\alpha, \alpha', \beta, \beta'$ -tetramercury ether form in

Synthesis of Organo-Mercury Compounds From Hydrazones. SOV/62-58-11-7/26
Communication I. Interaction of Hydrazones of Aliphatic
Aldehydes and Ketones With Mercury Acetate

water, α -mercury or α, β -dimercury alkyl methyl esters in methanol, and α -mercury or α, β -dimercury alkyl acetates in absolute benzene. The chemical properties of the obtained organo-mercury compounds were investigated. It is demonstrated that a) dimercury compounds of the type (IV) - (VI) are decomposed by concentrated hydrochloric acid when heated. In this connection they separate calomel and form the corresponding carbonyl compounds b) bromination of dimercury compounds of the type (IV) - (VI) with a bromine solution saturated with potassium bromide leads in the cold to the formation of a corresponding α -bromoketone at the same time with a ketone c) monomercury compounds of the type (I) - (III) are decomposed in the cold by concentrated alkali. On this occasion they separate metallic mercury and form the corresponding carbonyl compounds. There are 1 table and 10 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
 Card 2/3 (Moscow State University imeni M. V. Lomonosov)

5(3)

AUTHORS:

Nesmeyanov, A. N., Reutov, O. A.,
Wu Yang-tseu, Lu Ching-chu

SOV/62-58-11-8/26

TITLE:

On the Problem of the Stereochemistry of the Reaction
Between Symmetric Organo-Mercury Compounds and Mercury
Halide (K voprosu o stereokhimii reaktsii simmetrichnykh
rtutnoorganicheskikh soyedineniy s galoidnoy rtut'yu)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1958, Nr 11, pp 1327-1330 (USSR)

ABSTRACT:

In the present paper the authors investigated the
stereochemistry of the reaction of symmetric
 α -mercury-1-menthyl ester of phenyl-acetic acid and
mercury bis- α,α' -camphor with mercury bromide in acetone
solution. Both reactions represent an electrophilic
substitution with saturated carbon atoms. It was demonstrated
that the first reaction in the cold takes place under main-
tenance of the configuration at the touched carbon atom.
Racemization observed at 56° is a secondary process.
Stereochemistry of the reaction of mercury bis- α,α' -camphor
with mercury bromide could not be determined because the
forming 3-bromomercury camphor racemizes under the action

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On the Problem of the Stereochemistry of the
Reaction Between Symmetric Organo-Mercury
Compounds and Mercury Halide

SOV/62-58-11-8/26

of mercury bromide during the reaction even in the cold.
By the investigation of the reaction of symmetric
 α -mercury-1-menthyl ester with an equimolecular amount
of hydrogen bromide the conclusions which had already been
drawn (Ref 1) were confirmed. Conclusions: the reaction
in the course of which the organo-mercury salts become
symmetric under the action of ammonia takes place at the
saturated carbon atom under maintenance of the configuration.
There are 4 references, 3 of which are Soviet

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)
SUBMITTED: March 26, 1957

Card 2/2

5(5)

AUTHORS:

~~Nesmeyanov, A. N.~~, Reutov, O.A.;
Ptitsyna, O. A., Tsurkan, P. A.

SCV/62-58-12-6/22

TITLE:

Synthesis of Organometallic Compounds of Pentavalent Antimony
by Arylation of the Organic Antimony Compounds ArSbX_2 and
 Ar_2SbX by Diazo-Compounds (Sintez metalloorganicheskikh
soyedineniy pyativalentnoy sur'my putem arilirovaniya
sur'myanoorganicheskikh soyedineniy ArSbX_2 i Ar_2SbX
diazosoyedineniyami.)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1958, Nr 12, pp 1435-1444 (USSR)

ABSTRACT:

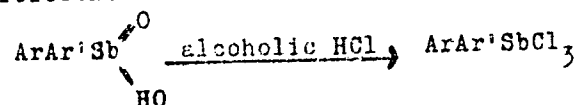
Published works give little data on the arylation of
organic antimony compounds by means of diazo-compounds
(Refs 4-7). In the present paper the authors investigated
in detail the possibilities of arylating compounds of the
type ArSbX_2 and Ar_2SbX by means of diazo-compounds as well
as of various diazonium double salts. They succeeded in
finding such conditions under which the reaction of arylation
can be carried out easily and in good yield. The method based

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Synthesis of Organometallic Compounds of
Pentavalent Antimony by Arylation of the Organic Antimony Compounds ArSbX_2
and Ar_2SbX by Diazo-Compounds

SOV/62-58-12-6/22

on the action of diazonium double salts of antimony trichloride on aryl-diiodo stibine proved to be a universal method for the synthesis of mixed organic antimony compounds of the type $\text{ArAr}'\text{SbX}_3$. The former are easily obtained from aryl stibine oxides. In almost all cases the reaction takes place at low temperatures and leads to the formation of the corresponding organic antimony compounds in very good yields. The compounds $\text{ArAr}'\text{SbX}_3$ were isolated as diaryl antimonie acid and identified as the diazonium double salts $\text{ArAr}'\text{SbCl}_3 \cdot \text{Ar}''\text{N}_2\text{Cl}$ according to the method developed in reference 8:

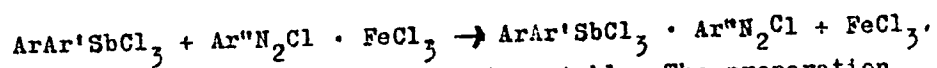


Card 2/3

Synthesis of Organometallic Compounds of
Pentavalent Antimony by Arylation of the Organic Antimony Compounds ArSbX_2

SOV/62-58-12-6/22

and Ar_2SbX by Diazo-Compounds



The results obtained are given in a table. The preparation method employed in synthesizing the substances of the types ArAr'SbX_3 and $\text{Ar}_2\text{Ar'SbX}_2$ is an important supplement of previous methods (Refs 2, 8-11) for the production of compounds of this type. There are 1 table and 16 references, 9 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni
M. V. Lomonosova (Moscow State University imeni
M. V. Lomonosova)

SUBMITTED: March 26, 1957

Card 3/3

5(3)
AUTHORS: ~~Nesmeyanov, A. N., Berisov, A. Ye., Savel'yeva, I. S.,~~
~~Golubeva, Ye. I.~~ SOV/62-58-12-16/22

TITLE: Vinyl Compounds of Heavy Metals (Vinil'nyye soyedineniya tyazhelykh metallov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 12, pp 1490-1491 (USSR)

ABSTRACT: In this brief report the authors report on the synthesized organic vinyl compounds of heavy metals. By the action of vinyl magnesium bromide on mercury bromide in tetrahydrofuran the vinyl mercury bromide was obtained. The latter easily becomes symmetric by sodium stannite and forms the liquid divinyl mercury. By a series of exchange reactions a number of other organo-metallic vinyl compounds were obtained from divinyl mercury. By a double decomposition of divinyl thallium chloride as well as of divinyl thallium bromide with tin bromide and thallium halides the corresponding vinyl derivatives of these metals were obtained. There are 11 references, 8 of which are Soviet.

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SOV/62-58-12-16/22

Winyl Compounds of Heavy Metals

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elementorganic Compounds, Academy of Sciences,
USSR)

SUBMITTED: May 20, 1958

Card 2/2

NESMEYANOV, A.N., akademik; PEREVALOVA, M.G., kand. khim. nauk.

New aromatic systems. Report No.1: Ferrocene as an aromatic system.
Khim. nauka i prom. 3 no.2:146-158 '58. (MIRA 11:6)
(Organic compounds) (Iron)